Journal of College Science Teaching

Index to Volume XVIII, September 1988 to May 1989

Subject Index

Astronomy

"Textbook Selection: Clearing the Fog." Mark Hollabaugh. M/A 327

Biology

"Teaching Biology Behind Prison Walls." Scott D. Hawke and John Ritter. S/O 22

"Writing Across the Curriculum: Team-Teaching the Review Article in Biology." Sharon K. Hotchkiss and Marilyn K. Nellis. S/O 45

"A Macroscopic Demonstration of a Microscopic Phenomenon." John W. Mellen. S/O 64

"The NSF-REU Program in Biology at Hope College: Education Through Research." James M. Gentile. N 116

"Undergraduate Research: A Little Experience Goes a Long Way." Janet Lanza and Garon C. Smith. N 118

"Clustering: An Interactive Technique to Enhance Learning in Biology." Joanna Ambron. N 122

"Undergraduate Biology Research at Augustana College, South Dakota." Larry L. Tieszen, Oscar H. Will, III, and Jackie Ekstrum. D/J 165

"This Zoo Is a Learning Lab: Linking Undergraduate Instruction and Research in Milwaukee." Angela M. Sauro. D/J 178

"A Sick Fish Cure for Academic Ills." Edwin A. Arnfield. D/J 182

"Teaching Biology Students Online Literature Searches." Christina A. Brundage and Peter L. DeFur. F 240

"Cadavers Can Be Useful in Teaching Anatomy in College." John Stencel and John Moore. F 242

"Let Me Tell You a Story." Jon A. Sperling. M 361

"Planning and Implementing Undergraduate Field Experiences in Tropical Marine Science." M. Drew Ferrier. M 368

"How Is This Flower Pollinated? A Polyclave Key to Use in Teaching." Lucy Tyrrell. M 378

"The Real Value of Writing to Learning in Biology." Steve Trombulak and Sallie Sheldon. M 384

"Mitosis with Curling Ribbon Chromosomes." Karen Dietrich. M 421

Careers

"Q and A: Betty Vetter." Marta Cehelsky. S/O 12

"A Program to Familiarize Premedical Students with Their Proposed Career Choice." William Silverman, Nancy Hartung, James D. Kramer, and Judy Hayes. S/O 41

"A High School Chemistry Prep Course Designed to Increase the Number of Black Americans in Science-Related Careers." J.W. Carmichael, Jr., and John P. Sevenair. S/O 51

"Women Scientists: Toward a Two-Tiered System." Helen G. Koritz. N 87

"A Function in Trouble: Undergraduate Science Teaching in Research Universities." Robert W. Merriam. N 102

"Beyond the Pipeline's End." Lester G. Paldy. D/J 154

"Educating Scientists and Engineers: Grade School to Grad School." D/J 156

"The National Science Foundation Long-Range Plan FY 1989- 1993." F 215

"Semester's End." Lester G. Paldy. M 357

"House Concurrent Resolution #57." M 359

"Gifted Students Will Be Thailand's 21st-Century Scientists." Daniel E. Bowen. M 412

Chemistry

"A High School Chemistry Prep Course Designed to Increase the Number of Black Americans in Science-Related Careers." J.W. Carmichael, Jr., and John P. Sevenair. S/O 51

"A Hands-On Research Experience in Chemistry for Undergraduates in the Southwest." John L. Hogg. N 107

"NSF Summer Program Boosts Student Research Tradition at The College of Wooster." Theodore R. Williams and David L. Powell. N 111

"Undergraduate Research: A Little Experience Goes a Long Way." Janet Lanza and Garon C. Smith. N 118

"A 'Rainstorm' in a Bag: A Demonstration of States of Matter and Changes." Don B. Hilton and Judith A. Kelley. N 128

"The Hair Roller as a Mind Bender: A Demonstration of Specific Heat and Heat of Fusion." Judith M. Bonicamp, Robin Cole, Rhonda Norrell, and Danny Bingham. D/J 162

"Is Practical Work Practicable?" Alex H. Johnstone and Kirsty M. Letton. D/J 190

"A Nontraditional Organic Chemistry Course." John P. Sevenair, Sally E. O'Connor, and Manjie Nazery. F 236

"The Computer Revolution and Physical Chemistry." James F. O'Brien. F 252

"A Course in Chemical Pharmacology." Eugene J. Volker. F 255

"Demonstrating Absorption Spectra in the Classroom." Erwin W. Richter. F 262

"A Science Safety Road Show." Geoffrey Rayner-Canham and William Layden. M/A 330

"Readin,' 'Ritin,' and Redox." C.H. Breedlove. M/A 342

"Open-Ended Chemical Experiments for Students." Miki Niwa and Yuichi Murakami. M 360

Community Colleges

"Promoting Student Research at the Two-Year College." Thomas R. Lord. D/J 174

"Cadavers Can Be Useful in Teaching Anatomy in College." John Stencel and John Moore. F 242

"Science Teaching: A Matter of Changing Minds." Patricia A. Basili. M/A 324

Computers

"Computer Use in the Stockroom." Ruth E. Ebeling. S/O 48

"NSF-REU Program Helps Computer Science Students and Teachers See Value in Education." Philip J. Hatcher. D/J 168

"Integrating Undergraduates into the Research Activities of a Computer Science Department." Robert P. Ingalls. D/J 172

"Teaching Biology Students Online Literature Searches." Christina A. Brundage and Peter L. DeFur. F 240

"The Computer Revolution and Physical Chemistry." James F. O'Brien. F 252

"Beyond the Black Box: Using the Microcomputer as a Multipurpose Analytical Instrument." Daniel B. Matlock and Duane C. Stewart. F 313

"Computers in the Education of Science Students: A Comparison of Universities and Colleges in Japan and the United States." Daniel E. Stogryn. M/A 334

Critical Thinking

"Some Practical Distinctions Between Preaching, Teaching, and Training." Beverly C. Pestel. S/O 26

"Novice vs. Expert Research Suggests Ideas for Implementation." Donald R. Woods. S/O 77, N 138, D/J 193

"Active Learning Often Starts with a Question." Ronald J. Bonnstetter. N 95

"Clustering: An Interactive Technique to Enhance Learning in Biology." Joanna Ambron. N 122

"A Sick Fish Cure for Academic Ills." Edwin A. Arnfield. D/J 182

"Other Voices, Other Views." Lester G. Paldy. F 219

"Fact, Law, and Theory: Ways of Thinking in Science and Literature." Gale Rhodes and Robert Schaible. F 228

Curriculum

"National Science Teachers Association Science Education Initiatives for the 1990s." D/J 152, F 214

INDEX

Ecology

"Marine and Island Ecology." Lawrence J. Stephens, William G. Lindsay, Geraldine C. Hall, Lee B. Kass, Leonard Simons, and Richard C. Ulsh. S/O 18

"Undergraduate Biology Research at Augustana College, South Dakota." Larry L. Tieszen, Oscar H. Will, III, and Jackie Ekstrum. D/J 165

"Planning and Implementing Undergraduate Field Experiences in Tropical Marine Science." M. Drew Ferrier. M 368

"How Is This Flower Pollinated? A Polyclave Key to Use in Teaching." Lucy Tyrrell. M 378

Engineering

"Beyond the Pipeline's End." Lester G. Paldy. D/J 154

"Educating Scientists and Engineers: Grade School to Grad School." D/J 156

Equipment

"Computer Use in the Stockroom." Ruth E. Ebeling. S/O 48

"The Hair Roller as a Mind Bender: A Demonstration of Specific Heat and Heat of Fusion." Judith M. Bonicamp, Robin Cole, Rhonda Norrell, and Danny Bingham. D/J 162

"National Science Teachers Association Science Education Initiatives for the 1990s." F 214

"Closed-Circuit Television as a Medium to Teach Physical Geology Lecture and Laboratory." James W. Pendleton. F 246

"Beyond the Black Box: Using the Microcomputer as a Multipurpose Analytical Instrument." Daniel B. Matlock and Duane C. Safford. M/A 313

"A Science Safety Road Show." Geoffrey Rayner-Canham and William Layden. M/A 330

"Computers in the Education of Science Students: A Comparison of Universities and Colleges in Japan and the United States." Daniel E. Stogryn. M/A 334

Funding

"U.S. Department of Energy Increases Science Education Support in 1989 Budget." Gerald Kulm. N 90

"Undergraduate Research: Is It Really Worth It?" Eleanor D. Siebert. N 92

"A Function in Trouble: Undergraduate Science Teaching in Research Universities." Robert W. Merriam. N 102

"National Science Teachers Association Science Education Initiatives for the 1990s." D/J 152

General Science Education

"A Program to Familiarize Premedical Students with Their Proposed Career Choice." William Silverman, Nancy Hartung, James D. Kramer, and Judy Hayes. S/O 41

"This Zoo Is a Learning Lab: Linking Undergraduate Instruction and Research in Milwaukee." Angela M. Sauro. D/J 178

"Fact, Law, and Theory: Ways of Thinking in Science and Literature." Gale Rhodes and Robert Schaible. F 228

"Approaching Scientific Literacy Goals in General Education Science Courses." Robert E. Yager. F 273

"The Boston Scholars: An Introduction to College Science with an Interdisciplinary Focus." Sally K. Sommers Smith and Dane A. Morrison. M/A 307

"Multidisciplinary Teaching About Nuclear Arms." Michael S. Hamilton. M/A 318

"Science Teaching: A Matter of Changing Minds." Patricia A. Basili. M/A 324

"Textbook Selection: Clearing the Fog." Mark Hollabaugh. M/A 327

"House Concurrent Resolution #57." M 359

"Study Skills for the Sciences: A Bridge Over Troubled Waters." Janet Ryan. M 373

"Designing Labs to Develop a More Realistic View of Thresholds." Gordon E. Bigelow. M 400

"The Individual, Science, and the Environment." David L. Adams, John L. Roberts, and Marcia L. Walsh. M 406

"Science Education for the Nonmajor: The Problems." Mario W. Caprio, William McIntosh, and Helen Koritz. M 419

Geology

"Integrating Geology for the Pleasure of It." Susan M. Todd. N 98

"Closed-Circuit Television as a Medium to Teach Physical Geology Lecture and Laboratory." James W. Pendleton. F 246

History of Science

"The Exhibition Road." Paul S. Cohen and Brenda H. Cohen. S/O 76

"Musee National Des Techniques." Paul S. Cohen and Brenda H. Cohen. N 130

"The Swiss Museum of Pharmaceutical History." Paul S. Cohen and Brenda H. Cohen. F 258

"Charles Darwin's Down House." Paul S. Cohen and Brenda H. Cohen. M/A 302

"The Franklin Institute Science Museum and Planetarium." Paul S. Cohen and Brenda H. Cohen. M 366

Instructional Techniques

"Ends and Beginnings." Lester G. Paldy. S/O 7

"Teaching Biology Behind Prison Walls." Scott D. Hawke and John Ritter. S/O 22

"Some Practical Distinctions Between Preaching, Teaching, and Training." Beverly C. Pestel. S/O 26

"Inquiry, Investigation, and Communication in the Student- Directed Laboratory." Martha Y. Janners. S/O 32

"Writing Across the Curriculum: Team-Teaching the Review Article in Biology." Sharon K. Hotchkiss and Marilyn K. Nellis. S/O 45

"A High School Chemistry Prep Course Designed to Increase the Number of Black Americans in Science-Related Careers." J.W. Carmichael, Jr., and John P. Sevenair. S/O 51

"Active Learning Often Starts with a Question." Ronald J. Bonnstetter. N 95

"Integrating Geology for the Pleasure of It." Susan M. Todd. N 98

"Clustering: An Interactive Technique to Enhance Learning in Biology." Joanna Ambron. N 122

"Novice Versus Expert Research." Donald R. Woods. D/J 193

"Bart and Miss Tiggiewinkle." William M. Frase. D/J 159

"The Hair Roller as a Mind Bender: A Demonstration of Specific Heat and Heat of Fusion." Judith M. Bonicamp, Robin Cole, Rhonda Norrell, and Danny Bingham. D/J 162

"Undergraduate Biology Research at Augustana College, South Dakota." Larry L. Tieszen, Oscar H. Will, III, and Jackie Ekstrum. D/J 165

"Introducing Undergraduates to Math Research." Lawrence S. Husch. D/J 170

"Promoting Student Research at the Two-Year College." Thomas R. Lord. D/J 174

"A Sick Fish Cure for Academic Ills." Edwin A. Arnfield. D/J 182

"Research on Instructional Strategies." Michael R. Abraham. D/J 185

"Is Practical Work Practicable?" Alex H. Johnstone and Kirsty M. Letton. D/J 190

"Other Voices, Other Views." Lester G. Paldy. F 219

"Fear and Trembling in the Examination Hour." Michael J. Strauss and John H. Clarke. F 233

"A Nontraditional Organic Chemistry Course." John P. Sevenair, Sally E. O'Connor, and Manjie Nazery. F 236

"Teaching Biology Students Online Literature Searches." Christina A. Brundage and Peter L. DeFur. F 240

"Cadavers Can Be Useful in Teaching Anatomy in College." John Stencel and John Moore. F 242

"Closed-Circuit Television as a Medium to Teach Physical Geology Lecture and Laboratory." James W. Pendleton. F 246

"Grading to Motivate Desired Student Performance in a Descriptive Laboratory Course." Marjorie Kandel. F 249

"A Course in Chemical Pharmacology." Eugene J. Volker. F 255

"Ten Years of Research on Investigative Laboratory Instruction Strategies." William H. Leonard. M/A 304

"The Boston Scholars: An Introduction to College Science with an Interdisciplinary Focus." Sally K. Sommers Smith and Dane A. Morrison. M/A 307

"Multidisciplinary Teaching About Nuclear Arms." Michael S. Hamilton. M/A 318

"Science Teaching: A Matter of Changing Minds." Patricia A. Basili. M/A 324

"A Science Safety Road Show." Geoffrey Rayner-Canham and William Layden. M/A 330

"Computers in the Education of Science Students: A Comparison of Universities and Colleges in Japan and the United States." Daniel E. Stogryn. M/A 334

"Teaching Thinking and Ideas About Assessment." Donald R. Woods. M/A 338

"Readin,' 'Ritin,' and Redox." C.H. Breedlove. M/A 342
"Open-Ended Chemical Experiments for Students." Miki Niwa and Yuichi Murakami. M 360
"Let Me Tell You a Story." Jon A. Sperling. M 361
"Planning and Implementing Undergraduate Field Experiences in Tropical Marine Science." M. Drew Ferrier. M 368
"Study Skills for the Sciences: A Bridge Over Troubled Waters." Janet Ryan. M 373
"How Is This Flower Pollinated? A Polyclave Key to Use in Teaching." Lucy Tyrrell. M 378
"The Real Value of Writing to Learning in Biology." Steve Trombulak and Sallie Sheldon. M 384
"Designing Labs to Develop a More Realistic View of Thresholds." Gordon E. Bigelow. M 400
"The Individual, Science, and the Environment." David L. Adams, John L. Roberts, and Marcia L. Walsh. M 406
"Gifted Students Will Be Thailand's 21st-Century Scientists." Daniel E. Bowen. M 412
"Mitosis with Curling Ribbon Chromosomes." Karen Dietrich. M 421

International Education

"Marine and Island Ecology." Lawrence J. Stephens, William G. Lindsay, Geraldine C. Hall, Lee B. Kass, Leonard Simons, and Richard C. Ulsh. S/O 18
"Computers in the Education of Science Students: A Comparison of Universities and Colleges in Japan and the United States." Daniel E. Stogryn. M/A 334
"Planning and Implementing Undergraduate Field Experiences in Tropical Marine Science." M. Drew Ferrier. M 368
"Gifted Students Will Be Thailand's 21st-Century Scientists." Daniel E. Bowen. M 412
"Open-Ended Chemical Experiments for Students." Miki Niwa and Yuichi Murakami. M 360

Laboratory

"Inquiry, Investigation, and Communication in the Student-Directed Laboratory." Martha Y. Janners. S/O 32
"Can Ability as a Teaching Assistant Be Predicted?" Miles Pickering. S/O 55
"A Macroscopic Demonstration of a Microscopic Phenomenon." John W. Mellen. S/O 64
"A 'Rainstorm' in a Bag: A Demonstration of States of Matter and Changes." Don B. Hilton and Judith A. Kelley. N 128
"Is Practical Work Practicable?" Alex H. Johnstone and Kirsty M. Letton. D/J 190
"So You're Thinking of Publishing a Lab Manual." Miles Pickering. F 223
"Cadavers Can Be Useful in Teaching Anatomy in College." John Stencel and John Moore. F 242
"Closed-Circuit Television as a Medium to Teach Physical Geology Lecture and Laboratory." James W. Pendleton. F 246
"Grading to Motivate Desired Student Performance in a Descriptive Laboratory Course." Marjorie Kandel. F 249
"The Computer Revolution and Physical Chemistry." James F. O'Brien. F 252
"What Might Be Done About the Lab Liability Mess?" Miles Pickering. M/A 299
"Ten Years of Research on Investigative Laboratory Instruction Strategies." William H. Leonard. M/A 304
"Beyond the Black Box: Using the Microcomputer as a Multipurpose Analytical Instrument." Daniel B. Matlock and Duane C. Safford. M/A 313
"A Science Safety Road Show." Geoffrey Rayner-Canham and William Layden. M/A 330
"Study Skills for the Sciences: A Bridge Over Troubled Waters." Janet Ryan. M 373
"Designing Labs to Develop a More Realistic View of Thresholds." Gordon E. Bigelow. M 400
"Open-Ended Chemical Experiments for Students." Miki Niwa and Yuichi Murakami. M 360

Marine Science

"Marine and Island Ecology." Lawrence J. Stephens, William G. Lindsay, Geraldine C. Hall, Lee B. Kass, Leonard Simons, and Richard C. Ulsh. S/O 18
"Planning and Implementing Undergraduate Field Experiences in Tropical Marine Science." M. Drew Ferrier. M 368

Measurement

"Measurements, Physical Quantities, and Units." Laurence E. Wilson. S/O 36

Minorities in Science

"Q and A: Betty Vetter." Marta Cehelsky. S/O 12
"A High School Chemistry Prep Course Designed to Increase the Number of Black Americans in Science-Related Careers." J.W. Carmichael, Jr., and John P. Sevenair. S/O 51
"Women Scientists: Toward a Two-Tiered System." Helen G. Koritz. N 87
"U.S. Department of Energy Increases Science Education Support in 1989 Budget." Gerald Kulm. N 90
"A Hands-On Research Experience in Chemistry for Undergraduates in the Southwest." John L. Hogg. N 107
"Beyond the Pipeline's End." Lester G. Paldy. D/J 154
"Educating Scientists and Engineers: Grade School to Grad School." D/J 156
"National Science Teachers Association Science Education Initiatives for the 1990s." F 214
"The National Science Foundation Long-Range Plan FY 1989- 1993." F 215
"Other Voices, Other Views." Lester G. Paldy. F 219
"A Nontraditional Organic Chemistry Course." John P. Sevenair, Sally E. O'Connor, and Manjie Nazery. F 236
"House Concurrent Resolution #57." M 359
"New Horizons." Theodore Lopushinsky. M 418

NSF Budget and Programs

"A Hands-On Research Experience in Chemistry for Undergraduates in the Southwest." John L. Hogg. N 107
"NSF Summer Program Boosts Student Research Tradition at The College of Wooster." Theodore R. Williams and David L. Powell. N 111
"The NSF-REU Program in Biology at Hope College: Education Through Research." James M. Gentile. N 116
"Undergraduate Research: A Little Experience Goes a Long Way." Janet Lanza and Garon C. Smith. N 118
"Undergraduate Biology Research at Augustana College, South Dakota." Larry L. Tieszen, Oscar H. Will, III, and Jackie Ekstrum. D/J 165
"NSF-REU Program Helps Computer Science Students and Teachers See Value in Education." Philip J. Hatcher. D/J 168
"Introducing Undergraduates to Math Research." Lawrence S. Husch. D/J 170
"Integrating Undergraduates into the Research Activities of a Computer Science Department." Robert P. Ingalls. D/J 172
"The National Science Foundation Long-Range Plan FY 1989- 1993." F 215
"Interactive Peer Review." Lester G. Paldy. M/A 295
"Fiscal 1990 Budget Request for the National Science Foundation." M/A 296

Physics

"A Macroscopic Demonstration of a Microscopic Phenomenon." John W. Mellen. S/O 64
"A 'Rainstorm' in a Bag: A Demonstration of States of Matter and Changes." Don B. Hilton and Judith A. Kelley. N 128
"The Hair Roller as a Mind Bender: A Demonstration of Specific Heat and Heat of Fusion." Judith M. Bonicamp, Robin Cole, Rhonda Norrell, and Danny Bingham. D/J 162
"Needed: An Author–Publisher Fair Practice Code." Robert L. Weber. F 220
"The Absorption Specturm of a Rare-Earth Mineral." Thomas M. Jordan. F 263

Problem Solving

"Some Practical Distinctions Between Preaching, Teaching, and Training." Beverly C. Pestel. S/O 26
"Novice vs. Expert Research Suggests Ideas for Implementation." Donald R. Woods. S/O 77, N 138, D/J 193
"Active Learning Often Starts with a Question." Ronald J. Bonnstetter. N 95
"A Sick Fish Cure for Academic Ills." Edwin A. Arnfield. D/J 182
"Creativity." Donald R. Woods. F 259
"Teaching Thinking and Ideas About Assessment." Donald R. Woods. M/A 338
"Study Skills for the Sciences: A Bridge Over Troubled Waters." Janet Ryan. M 373

Research
"Research Fraud: Providing the Right Environment." C. Ian Jackson. S/O 14
"Novice vs. Expert Research Suggests Ideas for Implementation." Donald R. Woods. S/O 77, N 138, D/J 193
"U.S. Department of Energy Increases Science Education Support in 1989 Budget." Gerald Kulm. N 90
"Undergraduate Research: Is It Really Worth It?" Eleanor D. Siebert. N 92
"A Function in Trouble: Undergraduate Science Teaching in Research Universities." Robert W. Merriam. N 102
"A Hands-On Research Experience in Chemistry for Undergraduates in the Southwest." John L. Hogg. N 107
"Interdisciplinary Research for Undergraduates at the Center for Great Lakes Studies." Kenneth H. Nealson. N 109
"NSF Summer Program Boosts Student Research Tradition at The College of Wooster." Theodore R. Williams and David L. Powell. N 111
"The NSF-REU Program in Biology at Hope College: Education Through Research." James M. Gentile. N 116
"Undergraduate Research: A Little Experience Goes a Long Way." Janet Lanza and Garon C. Smith. N 118
"National Science Teachers Association Science Education Initiatives for the 1990s." D/J 152, F 214
"Undergraduate Biology Research at Augustana College, South Dakota." Larry L. Tieszen, Oscar H. Will, III, and Jackie Ekstrum. D/J 165
"NSF-REU Program Helps Computer Science Students and Teachers See Value in Education." Philip J. Hatcher. D/J 168
"Introducing Undergraduates to Math Research." Lawrence S. Husch. D/J 170
"Integrating Undergraduates into the Research Activities of a Computer Science Department." Robert P. Ingalls. D/J 172
"Promoting Student Research at the Two-Year College." Thomas R. Lord. D/J 174
"This Zoo Is a Learning Lab: Linking Undergraduate Instruction and Research in Milwaukee." Angela M. Sauro. D/J 178
"Research on Instructional Strategies." Michael R. Abraham. D/J 185
"The National Science Foundation Long-Range Plan FY 1989-1993." F 215
"Ten Years of Research on Investigative Laboratory Instruction Strategies." William H. Leonard. M/A 304

SCST
"Phase II." William M. Frase. S/O 11
"Bart and Miss Tiggiewinkle." William M. Frase. D/J 159
"Give Your Teaching a Lift." William M. Frase. F 272
"Parting Reflections." William M. Frase. M/A 298
"New Horizons." Theodore Lopushinsky. M 418
"Science Education for the Nonmajor: The Problems." Mario W. Caprio, William McIntosh, and Helen Koritz. M 419

Travel
"The Exhibition Road." Paul S. Cohen and Brenda H. Cohen. S/O 76
"Musee National Des Techniques." Paul S. Cohen and Brenda H. Cohen. N 130
"The Everglades." Paul S. Cohen and Brenda H. Cohen. D/J 188
"The Swiss Museum of Pharmaceutical History." Paul S. Cohen and Brenda H. Cohen. F 258
"Charles Darwin's Down House." Paul S. Cohen and Brenda H. Cohen. M/A 302
"The Franklin Institute Science Museum and Planetarium." Paul S. Cohen and Brenda H. Cohen. M 366
"Planning and Implementing Undergraduate Field Experiences in Tropical Marine Science." M. Drew Ferrier. M 368

Writing in the Sciences
"Writing Across the Curriculum: Team-Teaching the Review Article in Biology." Sharon K. Hotchkiss and Marilyn K. Nellis. S/O 45
"Integrating Geology for the Pleasure of It." Susan M. Todd. N 98
"Clustering: An Interactive Technique to Enhance Learning in Biology." Joanna Ambron. N 122
"Needed: An Author-Publisher Fair Practice Code." Robert L. Weber. F 220
"So You're Thinking of Publishing a Lab Manual." Miles Pickering. F 223
"The Real Value of Writing to Learning in Biology." Steve Trombulak and Sallie Sheldon. M 384

Author Index

Aagaard, Stanley A. Contributing Editor, Media. S/O 61
Abraham, Michael R. "Research on Instructional Strategies." D/J 185
Adams, David L. "The Individual, Science, and the Environment." M 406
Ahl, Alwnelle S. Contributing Editor, Books. F 283-4
Ambron, Joanna. "Clustering: An Interactive Technique to Enhance Learning in Biology." N 122
Anderson, Robbin C. Contributing Editor, Abstracts. S/O 60; N 137
Arnfield, Edwin A. "A Sick Fish Cure for Academic Ills." D/J 82
Baird, Ronald C. Contributing Editor, Books. N 131
Basili, Patricia A. "Science Teaching: A Matter of Changing Minds." M/A 324
Battin, William. Contributing Editor, Books. M/A 344
Bigelow, Gordon E. "Designing Labs to Develop a More Realistic View of Thresholds." M 400
Bingham, Danny. "The Hair Roller as a Mind Bender: A Demonstration of Specific Heat and Heat of Fusion." D/J 162
Bonicamp, Judith M. "The Hair Roller as a Mind Bender: A Demonstration of Specific Heat and Heat of Fusion." D/J 162
Bonnstetter, Ronald J. "Active Learning Often Starts with a Question." N 95
Bowen, Daniel E. "Gifted Students Will Be Thailand's 21st-Century Scientists." M 412
Breedlove, C.H. "Readin,' 'Ritin,' and Redox." M/A 342
Brundage, Christina A. "Teaching Biology Students Online Literature Searches." F 240
Caprio, Mario W. "Science Education for the Nonmajor: The Problems." M 419
Carmichael, J.W., Jr. "A High School Chemistry Prep Course Designed to Increase the Number of Black Americans in Science-Related Careers." S/O 51
Cehelsky, Marta. "Q and A: Betty Vetter." S/O 12
Clarke, John H. "Fear and Trembling in the Examination Hour." F 233
Cohen, Brenda H. "The Exhibition Road." S/O 76; "Musee National Des Techniques." N 130; "The Everglades." D/J 188; "The Swiss Museum of Pharmaceutical History." F 258; "Charles Darwin's Down House." M/A 302; "The Franklin Institute Science Museum and Planetarium." M 366
Cohen, Paul S. "The Exhibition Road." S/O 76; "Musee National Des Techniques." N 130; "The Everglades." D/J 188; "The Swiss Museum of Pharmaceutical History." F 258; "Charles Darwin's Down House." M/A 302; "The Franklin Institute Science Museum and Planetarium." M 366
Cole, Robin. "The Hair Roller as a Mind Bender: A Demonstration of Specific Heat and Heat of Fusion." D/J 162
Cones, Harold. Contributing Editor, Instructional Media. S/O 61; N 134; M/A 341
DeFur, Peter L. "Teaching Biology Students Online Literature Searches." F 240
Dietrich, Karen. "Mitosis with Curling Ribbon Chromosomes." M 421
Ebeling, Ruth E. "Computer Use in the Stockroom." S/O 48
Ekstrum, Jackie. "Undergraduate Biology Research at Augustana College, South Dakota." D/J 165
Englemann, Manfred D. Contributing Editor, Instructional Media. D/J 208
Evans, Kenneth R. Contributing Editor, Instructional Media. N 134
Faber, Shepard M. Contributing Editor, Instructional Media. F 287
Ferrier, M. Drew. "Planning and Implementing Undergraduate Field Experiences in Tropical Marine Science." M 368
Finster, David C. Contributing Editor, Abstracts. S/O 60
Fisher, Thomas M. Contributing Editor, Books. F 282
Flannery, Maura C. Contributing Editor, Abstracts. N 136
Flower, Terrence F. Contributing Editor, Instructional Media. F 286; F 287
Foos, K. Michael. Contributing Editor, Books. F 284-5
Frase, William M. "Phase II." S/O 11; "Bart and Miss

Tiggiewinkle." D/J 159; "Give Your Teaching a Lift." F 272; "Parting Reflections." M/A 298
Gentile, James M. "The NSF-REU Program in Biology at Hope College: Education Through Research." N 116
Grebe, Stephen C. Contributing Editor, Books. D/J 196
Hall, Geraldine C. "Marine and Island Ecology." S/O 18
Hamilton, Michael S. "Multidisciplinary Teaching About Nuclear Arms." M/A 318
Hart, Richard C. Contributing Editor, Books. F 285
Hartung, Nancy. "A Program to Familiarize Premedical Students with Their Proposed Career Choice." S/O 41
Hatcher, Philip J. "NSF-REU Program Helps Computer Science Students and Teachers See Value in Education." D/J 168
Hawke, Scott D. "Teaching Biology Behind Prison Walls." S/O 22
Hayes, Judy. "A Program to Familiarize Premedical Students with Their Proposed Career Choice." S/O 41
Hearn, Michael J. Contributing Editor, Books. F 279-80
Hessley, Rita K. Contributing Editor, Equipment and New Products. S/O 62-3; F 225
Hilton, Don B. "A 'Rainstorm' in a Bag—A Demonstration of States of Matter and Changes." N 128
Hogg, John L. "A Hands-On Research Experience in Chemistry for Undergraduates in the Southwest." N 107
Hollabaugh, Mark. "Textbook Selection: Clearing the Fog." M/A 327
Hoots, Rita A. Contributing Editor, Abstracts. F 276-278; M/A 349-50
Hotchkiss, Sharon K. "Writing Across the Curriculum: Team- Teaching the Review Article in Biology." S/O 45
Husch, Lawrence S. "Introducing Undergraduates to Math Research." D/J 170
Ingalls, Robert P. "Integrating Undergraduates into the Research Activities of a Computer Science Department." D/J 172
Jackson, C. Ian. "Research Fraud: Providing the Right Environment." S/O 14
Janners, Martha Y. "Inquiry, Investigation, and Communication in the Student-Directed Laboratory." S/O 32
Johnstone, Alex H. "Is Practical Work Practicable?" D/J 190
Jordan, Thomas M. "The Absorption Spectrum of a Rare-Earth Mineral." F 263
Kandel, Marjorie. "Grading to Motivate Desired Student Performance in a Descriptive Laboratory Course." F 249
Kass, Lee B. "Marine and Island Ecology." S/O 18
Kauffman, George B. Contributing Editor, Abstracts. S/O 60; N 135; N 137; D/J 198; F 276-77; M/A 350; Contributing Editor, Books. D/J 196; M/A 343; M/A 348
Kelley, Judith A. "A 'Rainstorm' in a Bag: A Demonstration of States of Matter and Changes." N 128
Koritz, Helen G. "Women Scientists: Toward a Two-Tiered System." N 87; "Science Education for the Nonmajor: The Problems." M 419
Kramer, James D. "A Program to Familiarize Premedical Students with Their Proposed Career Choice." S/O 41
Kulm, Gerald. "U.S. Department of Energy Increases Science Education Support in 1989 Budget." N 90
Lanza, Janet. "Undergraduate Research: A Little Experience Goes a Long Way." N 118
Layden, William. "A Science Safety Road Show." M/A 330
Lemke, Jay L. Contributing Editor, Books. S/O 57; F 280- 1
Leonard, William H. "Ten Years of Research on Investigative Laboratory Instruction Strategies." M/A 304
Letton, Kirsty M. "Is Practical Work Practicable?" D/J 190
Lindsay, William G. "Marine and Island Ecology." S/O 18
Lopushinsky, Theodore. "New Horizons." M 418
Lord, Thomas R. "Promoting Student Research at the Two-Year College." D/J 174
Loughlin, Julia. Contributing Editor, Books. F 281-2
Matlock, Daniel B. "Beyond the Black Box: Using the Microcomputer as a Multipurpose Analytical Instrument." M/A 313
McIntosh, William. "Science Education for the Nonmajor: The Problems." M 419
Mellen, John W. "A Macroscopic Demonstration of a Microscopic Phenomenon." S/O 64.
Merriam, Robert W. "A Function in Trouble: Undergraduate Science Teaching in Research Universities." N 102
Moore, John. "Cadavers Can Be Useful in Teaching Anatomy in College." F 242
Morrison, Dane A. "The Boston Scholars: An Introduction to College Science with an Interdisciplinary Focus." M/A 307
Murakami, Yuichi. "Open-Ended Chemical Experiments for Students." M 360
Nazery, Manjie. "A Nontraditional Organic Chemistry Course." F 236
Nealson, Kenneth H. "Interdisciplinary Research for Undergraduates at the Center for Great Lakes Studies." N 109
Nellis, Marilyn K. "Writing Across the Curriculum: Team-Teaching the Review Article in Biology." S/O 45
Niwa, Miki. "Open-Ended Chemical Experiments for Students." M 360
Norrell, Rhonda. "The Hair Roller as a Mind Bender: A Demonstration of Specific Heat and Heat of Fusion." D/J 162
Northrip, John W. Contributing Editor, Books. N 133
O'Brien, James F. Contributing Editor, Abstracts. D/J 198; "The Computer Revolution and Physical Chemistry." F 252
O'Connor, Sally E. "A Nontraditional Organic Chemistry Course." F 236
Paldy, Lester G. "Ends and Beginnings." S/O 7; "Beyond the Pipeline's End." D/J 154; "Other Voices, Other Views." F 219; "Interactive Peer Review." M/A 295; "Semester's End." M 357
Papagiannis, Michael D. Contributing Editor, Books. M/A 346
Pence, Harry E. Contributing Editor, Abstracts. D/J 199
Pendleton, James W. "Closed-Circuit Television as a Medium to Teach Physical Geology Lecture and Laboratory." F 246
Pestel, Beverly C. "Some Practical Distinctions Between Preaching, Teaching, and Training." S/O 26
Pickering, Miles. "Can Ability as a Teaching Assistant Be Predicted?" S/O 55; "So You're Thinking of Publishing a Lab Manual." F 223; "What Might Be Done About the Lab Liability Mess?" M/A 299
Powell, David L. "NSF Summer Program Boosts Student Research Tradition at The College of Wooster." N 111
Price, Frederick W. Contributing Editor, Instructional Media. F 286
Pynadath, Varghese D. Contributing Editor, Abstracts. D/J 199; Contributing Editor, Books. F 283
Rae, Ian D. Contributing Editor, Abstracts. M/A 349
Rayner-Canham, Geoffrey. "A Science Safety Road Show." M/A 330
Rhodes, Gale. "Fact, Law, and Theory: Ways of Thinking in Science and Literature." F 228
Richter, Erwin W. "Demonstrating Absorption Spectra in the Classroom." F 262
Riley, John T. Contributing Editor, Equipment and New Products. S/O 62-3; F 225
Ritter, John. "Teaching Biology Behind Prison Walls." S/O 22
Robbins, R. Robert. Contributing Editor, Books. N 133
Roberts, John L. "The Individual, Science, and the Environment." M 406
Roodin, Paul. Contributing Editor, Books. M/A 347-8
Ryan, Janet. "Study Skills for the Sciences: A Bridge Over Troubled Waters." M 373
Safford, Duane C. "Beyond the Black Box: Using the Microcomputer as a Multipurpose Analytical Instrument." M/A 313
Sauro, Angela M. "This Zoo Is a Learning Lab: Linking Undergraduate Instruction and Research in Milwaukee." D/J 178
Schaible, Robert. "Fact, Law, and Theory: Ways of Thinking in Science and Literature." F 228
Schoch, Robert M. Contributing Editor, Books. N 132
Sevenair, John P. "A High School Chemistry Prep Course Designed to Increase the Number of Black Americans in Science-Related Careers." S/O 51; "A Nontraditional Organic Chemistry Course." F 236
Sheldon, Sallie. "The Real Value of Writing to Learning in Biology." M 384
Shmaefsky, Brian. Contributing Editor, Abstracts. S/O 59; N 136
Siebert, Eleanor D. "Undergraduate Research: Is It Really Worth It?" N 92
Silverman, William. "A Program to Familiarize Premedical Students with Their Proposed Career Choice." S/O 41

INDEX

Simons, Leonard. "Marine and Island Ecology." S/O 18

Smith, Dwight G. Contributing Editor, Books. S/O 58

Smith, Garon C. "Undergraduate Research: A Little Experience Goes a Long Way." N 118

Smith, Sally K. Sommers. "The Boston Scholars: An Introduction to College Science with an Interdisciplinary Focus." M/A 307

Sperling, Jon A. "Let Me Tell You a Story." M 361

Stencel, John. "Cadavers Can Be Useful in Teaching Anatomy in College." F 242

Stephens, Lawrence J. "Marine and Island Ecology." S/O 18

Stogryn, Daniel E. "Computers in the Education of Science Students: A Comparison of Universities and Colleges in Japan and the United States." M/A 334

Strauss, Michael J. "Fear and Trembling in the Examination Hour." F 233

Talkington, Raymond W. Contributing Editor, Books. M/A 347

Tieszen, Larry L. "Undergraduate Biology Research at Augustana College, South Dakota." D/J 165

Todd, Susan M. "Integrating Geology for the Pleasure of It." N 98

Torok, Eileen Dedrick. Contributing Editor, Abstracts. D/J 197

Trombulak, Steve. "The Real Value of Writing to Learning in Biology." M 384

Turekian, Karl K. Contributing Editor, Books. M/A 345-6

Tyrrell, Lucy. "How Is This Flower Pollinated? A Polyclave Key to Use in Teaching." M 378

Ulsh, Richard C. "Marine and Island Ecology." S/O 18

Uritam, Rein A. Contributing Editor, Books. S/O 58

Volker, Eugene J. "A Course in Chemical Pharmacology." F 255

Walker, Noojin. Contributing Editor, Abstracts. D/J 198; F 278

Walker, Stephen S. Contributing Editor, Books. M/A 344-5

Walsh, Marcia L. "The Individual, Science, and the Environment." M 406

Weber, Robert L. "Needed: An Author-Publisher Fair Practice Code." F 220

Will, Oscar H. III. "Undergraduate Biology Research at Augustana College, South Dakota." D/J 165

Williams, Theodore R. "NSF Summer Program Boosts Student Research Tradition at The College of Wooster." N 111

Wilson, Laurence E. "Measurements, Physical Quantities, and Units." S/O 36

Winslow, Donald R. Contributing Editor, Abstracts. N 137; D/J 197; M/A 350

Wood, Clair G. Contributing Editor, Books. F 279

Woods, Donald R. "Novice vs. Expert Research Suggests Ideas for Implementation." S/O 77, N 138, D/J 193; "Creativity." F 259; "Teaching Thinking and Ideas About Assessment." M/A 338

Yager, Robert E. "Approaching Scientific Literacy Goals in General Education Science Courses." F 273

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Alverno College, Milwaukee, Wisconsin has led the way in innovative teaching and, specifically, in developing an integrated approach to developing PS skills. This June, the college offers a week-long workshop "Assessment Workshop for College Teachers" June 12–16, 1989. For more details contact Dr. Georgine Loacker, Alverno College, Milwaukee, WI 53215. ■

INDEX OF ADVERTISERS

Carolina Biological Supply Company ..... Cover 4

Meiji Techno America 365

Nikon, Inc. ..... Cover 2

North Carolina State University Physics Department 410

Ohaus Scale Corporation ..... 399 and Cover 3

POINT OF VIEW

(continued from pg. 360)

observation. They can consult with the teacher about these problems or observations, but students are left on their own in deciding how such information affects experimental design and conclusions.

Working in groups of two or three, the class meets from 1 p.m. to 5 p.m. for a total of five days. On the first day of class, they work to decide the purpose and procedure. From the second through fifth day, they carry out the experiment. Having a variety of catalysts to choose from is crucial to this type of lab session since it gives students greater freedom in designing experiments (see Table). Some students design their experiment around the preparation of a catalyst. Others explore the effect of various procedures on catalytic activity. Others explore the effects of mixing various reagents. We would be glad to send additional information to persons requesting it.

We have conducted these open-ended experiments for more than ten years. They are well received by students. Many tell us that they enjoy these experiments because they obtain insights into chemical research not possible in a structured laboratory situation.

Students report the experience better prepared them for possible research study in graduate school. Therefore, we believe that this curriculum provides those continuing their studies with a foundation for research work. ■

List of Catalysts

Chloride	Cr^{2+} Mn^{2+} Fe^{2+} Fe^{3+} Co^{2+} Ni^{2+} Cu^{2+} Zn^{2+}
Sulfate	Cr^{2+} Mn^{2+} Fe^{3+} Co^{2+} Ni^{2+} Cu^{2+} Zn^{2+}
Nitrate	Cr^{2+} Mn^{2+} Fe^{3+} Co^{2+} Ni^{2+} Cu^{2+} Zn^{2+}
Metal	Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn, Pt/Al_2O_3 Pd/Al_2O_3, Rh/Al_2O_3, Ru/Al_2O_3
Oxide	TiO_2, V_2O_5, Cr_2O_3, MnO_2, FeO, Fe_2O_3, CoO, Co_2O_3, Co_3O_4, NiO, Ni_2O_3, Cu_2O, CuO, ZnO, MoO_3, WO_3, SnO_2, PbO, Pb_3O_4, Al_2O_3, SiO_2-Al_2O_3
Zeolite	NaY, NaX, CaX, 3A, 5A, NaM, HM
Others	$Na_2Cr_2O_7$, $Na_2Mo_2O_4$, Na_2WO_4, Catalase, $HgCl_2$, Hg_2Cl_2, EDTA